

REPLACEMENT SHEET

Abstract of the Disclosure

A method of determining the presence of soybean sudden death syndrome resistance in the soybean plant in a greenhouse setting, the method comprising the steps of: (a) inoculating soil with a low density inoculum of *Fusarium solani*; (b) planting a soybean plant in said inoculated soil; (c) growing said plant in said soil in a greenhouse; (d) isolating *Fusarium solani*-infected tissue from said plant; (e) culturing said infected tissue for a period of time sufficient to allow for fungal colony forming unit growth; (f) scoring at least one of disease severity and infection severity in said plant using the number of said fungal colony forming units; and (g) correlating at least one of said disease severity and said infection severity to at least one of disease severity and infection severity data from genetic markers associated with soybean sudden death syndrome resistance to identify a correlation, wherein a statistically significant correlation indicates presence of soybean sudden death syndrome resistance in said soybean plant. Also provided is a method of characterizing resistance to soybean sudden death syndrome in a soybean plant, the method comprising the steps of: (a) isolating roots from a soybean plant infected by *Fusarium solani*; (b) culturing the root on a culture plate including a restrictive growth medium that provides for slow fungal growth and restricted bacterial growth; (c) determining root infection severity by statistically evaluating the number of *Fusarium solani* colony forming units on said culture plate; and (d) characterizing resistance to soybean sudden death syndrome in said soybean plant based on said determined root infection severity.